Validation Data Package
For
Ground and Surface Water Sampling
Moab, Utah

August 2004
Water Sampling

MOAB, UTAH

August 9-13, 2004

DATA PACKAGE CONTENTS

This data package includes the following information:

Item No.	Description of Contents
1.	**Site Hydrologist Summary**
2.	**Data Assessment Summary** that describes problems identified in the data validation process and summarizes the validator's findings.
3.	**Sampling Location Map**
4.	**Field Activities Verification Checklist** that verifies that field activities were done according to the work plan.
5.	**Database Printouts.** a. Water Quality Data b. Water Level Data
6.	**Sampling Trip Report**

Site Hydrologist Summary

Site: Moab, Utah

Sampling Period: Water samples were collected at selected ground water monitor wells and from the Colorado River during the period August 9-13, 2004. This sampling represents the second of three sampling rounds to be conducted in 2004. Sampling was conducted in accordance with the *Surface Water and Ground Water Monitoring Plan for the Moab, Utah Site* (DOE 2004).

SUMMARY CRITERIA

1. **Did concentrations in water from any domestic wells sampled exceed a ground water standard, primary drinking water standard, or health advisory?**

   Domestic wells were not sampled during this event.

2. **Were standards exceeded at any point-of-compliance wells?**

   Point-of-compliance wells have not been established at the Moab site.

3. **As a result of this sampling round, is there any indication of unexpected contaminated ground water movement?**

   There is no indication of unexpected contaminated ground water movement. Concentrations beneath the tailings pile at monitor well 437 have increased in uranium and decreased in ammonia since the last monitoring period. The decrease in ammonia concentration may be reflecting natural degradation. The increase in uranium concentration may be reflecting movement of the shallow ground water plume beneath the tailings pile. Ground water contamination in the shallow alluvial aquifer beneath the tailings pile and former mill site area flows to the southeast toward the Colorado River. This ground water movement is consistent with the site conceptual model as described in the Site Observation Work Plan (DOE 2003). Wells and surface locations that exceed water quality standards are listed in Table 1.

4. **Is there statistical evidence that UMTRA Project related contaminants were detected in a surface body of water in greater concentrations than upstream ambient water quality?**

Several analytes, including ammonia, chloride, sulfate, total dissolved solids, and uranium occur at elevated concentrations in the Colorado River. These elevated concentrations are found primarily adjacent to and just downstream from the mill tailing pile (i.e., surface location areas 0221 – 0225). The elevated concentrations decrease rapidly downstream and generally return to background levels at location 228.

Table 1. Wells/Surface Sites Where Standards Were Exceeded in August 2004

Analyte	Standard (mg/L)	Wells / Surface Sites Exceeding Standards
Uranium-Total	0.044	0401 (2.2), 0402 (2.4), 0404 (2.2), 0405 (1.3), 0406 (1.3), 0408 (2.8), 0437 (8.3), 0439 (0.95), 0492 (5.7), ATP-2-S (0.83), TP-02 (12)

Ken Karp
Site Lead

10-13-04
Date

DATA ASSESSMENT SUMMARY

MOAB, UTAH
AUGUST 9-13, 2004 SAMPLING EVENT
DATA ASSESSMENT SUMMARY

Paragon Analytics analyzed samples and reported results for this sampling event under requisition number 04070090 and work order number 0408115. Samples were analyzed for metals and inorganics (see Table 1).

Table 1. Analytes and Methods

ANALYTE	LINE ITEM CODE	PREP METHOD	ANALYTICAL METHOD
Uranium, U	GJO-01	SW-846 3005A	SW-846 6020
Chloride, Cl	MIS-A-039	SW-846 9056	SW-846 9056
Sulfate, SO4	MIS-A-044	SW-846 9056	SW-846 9056
Ammonia as N, NH3-N	WCH-A-005	MCAWW 350.1	MCAWW 350.1
Total Dissolved Solids, TDS	WCH-A-033	MCAWW 160.1	MCAWW 160.1

Table 2. Data Qualifiers (see following sections for detailed explanation)

SAMPLE NUMBER	LOCATION	ANALYTE	FLAG	REASON
0408115-23	2365	U	U	Less than 5 times the blank
0408115-24	2366	U	U	Less than 5 times the blank
0408115-30	TP-19	U	U	Less than 5 times the blank

Sample Shipping/Receiving

Paragon Analytics in Fort Collins, Colorado, received 38 samples on August 14, 2004, accompanied by a Chain of Custody form (COC). The COC form was checked to confirm that all of the samples are listed on the form and that signatures and dates are present indicating sample relinquishment and receipt. The sample submittal documents including the COC, the Sample Submittal Form, and the samples tickets had no errors or omissions.

Holding Times and Preservation

The sample shipments were received cool and intact with the temperature within the coolers of 3.2° C and 0.4° C, which is in compliance with requirements.

The bottles submitted for uranium analysis from locations 0405 and 0492 were received with a pH of 2.2; the laboratory adjusted the pH of these aliquots to 1.9 with nitric acid on August 14, 2004. Sufficient time elapsed between the pH adjustment and the sample analysis to allow equilibration.

The bottle submitted for ammonia analysis from location 0492 was received with a pH of 2.2; the laboratory adjusted the pH of this aliquot to 1.9 with sulfuric acid on August 14, 2004. Sufficient time elapsed between the pH adjustment and the sample analysis to allow equilibration.

All samples were analyzed within the applicable holding times.

Laboratory Instrument Calibration

All laboratory instrument calibrations were performed correctly in accordance with the cited methods. Calibrations for method SW-846 6020 were performed on August 17, 2004. The initial calibration was performed using 4 calibration standards resulting in correlation coefficient (r^2) values greater than 0.995. The absolute value of the intercept was less than 3 times the minimum detection limit (MDL). Calibration and laboratory spike standards were prepared from independent sources. Initial and continuing calibration verification (CCV) checks were made at the required frequency resulting in 9 CCVs. All calibration checks met the acceptance criteria.

A reporting limit verification check was made at the required frequency to verify the linearity of the calibration curve near the practical quantization limit. The mass calibration and resolution was checked at the beginning of each analytical run in accordance with the procedure. Internal standard recoveries where stable and within acceptance ranges.

Calibrations for method SW-845 9056 were performed for chloride and sulfate using five calibration standards on August 13, 2004. The r^2 values were greater than 0.995 and intercepts less than three times the MDL. Initial calibration and calibration check standards were prepared from independent sources. Initial and continuing calibration checks were made at the required frequency resulting in 14 CCVs that met the acceptance criteria.

The initial calibration for method MCAWW 350.1 (ammonia as N) was performed using six calibration standards on August 20, 2004, resulting in an r^2 value greater than 0.995. Initial and continuing calibration checks were made at the required frequency resulting in nine CCVs; all initial and continuing calibration verifications were within the acceptance criteria.

Method and Calibration Blanks

Method blanks for method SW-846 6020 and initial and continuing calibration blanks were below the practical quantization limits. Samples TP-19, 2365, and 2366 have a uranium result that is less than five times the concentration of the associated continuing calibration blank and are qualified as "U".

Method blanks for all inorganic analytes were below the MDLs. All initial and continuing calibration blanks were below the MDLs.

Inductively Coupled Plasma (ICP) Interference Check Sample (ICS) Analysis

The ICP ICSA and ICSAB were analyzed at the required frequency and met the acceptance criteria.

Matrix Spike Analysis

Two matrix spike and matrix spike duplicate (MS/MSD) pairs for method SW-846 6020 were analyzed for uranium with acceptable results. Two MS/MSD pairs were analyzed for chloride, sulfate, and ammonia as N with acceptable results.

Laboratory Replicate Analysis

The relative percent difference (RPD) value for the matrix spike duplicate for uranium was less than 20 percent. The RPD values for the matrix spike duplicate and laboratory duplicate sample for chloride, sulfate, ammonia as N, and TDS were less than 20 percent.

Laboratory Control Sample

Laboratory control samples were analyzed at the correct frequency with acceptable results for all analysis categories.

Metals Serial Dilution

Two serial dilutions were performed during the uranium analysis. The serial dilution of the sample from location 0201 failed to meet the acceptance criteria. No data are qualified because the concentration of the undiluted sample is less than 100 times the practical concentration limit.

Detection Limits/Dilutions

Samples were diluted in a consistent and acceptable manner when required. The samples were diluted prior to analysis of uranium to reduce interferences. The required detection limits were achieved whenever possible.

Completeness

Results were reported in correct units for all analytes requested. Appropriate contract-required laboratory qualifiers were used. Appropriate target analyte lists (TALs) were used, and the required detection limits were met when possible or an explanation of why they were not met was given in the laboratory case narrative.

Chromatography Peak Integration

The integration of analytes peaks was reviewed for all ion chromatography data. The manual integrations that were performed were acceptable and all peak integrations were satisfactory.

Electronic Data Deliverable (EDD) File

An EDD file arrived on September 10, 2004; the EDD validation application identified no problems with the EDD file.

Field Activities

All ground water monitoring well results were qualified with an "F" flag in the database indicating the wells were purged and sampled using the low-flow sampling procedures.

Two equipment blanks were collected and analyzed for the same constituents as the Moab Project environmental samples. Concentrations measured in the equipment blanks were below their respective contract required detection limit; therefore, equipment blank results are considered acceptable.

Duplicate samples were collected from locations CR-1 and TP-18. There are no established regulatory criteria for the evaluation of field duplicate samples; therefore, EPA guidance for *laboratory* duplicates (which is conservative for field duplicates) was used to assess the precision of the field duplicates. Duplicate results met the laboratory duplicate criteria of +/- 20 relative percent difference and are considered acceptable.

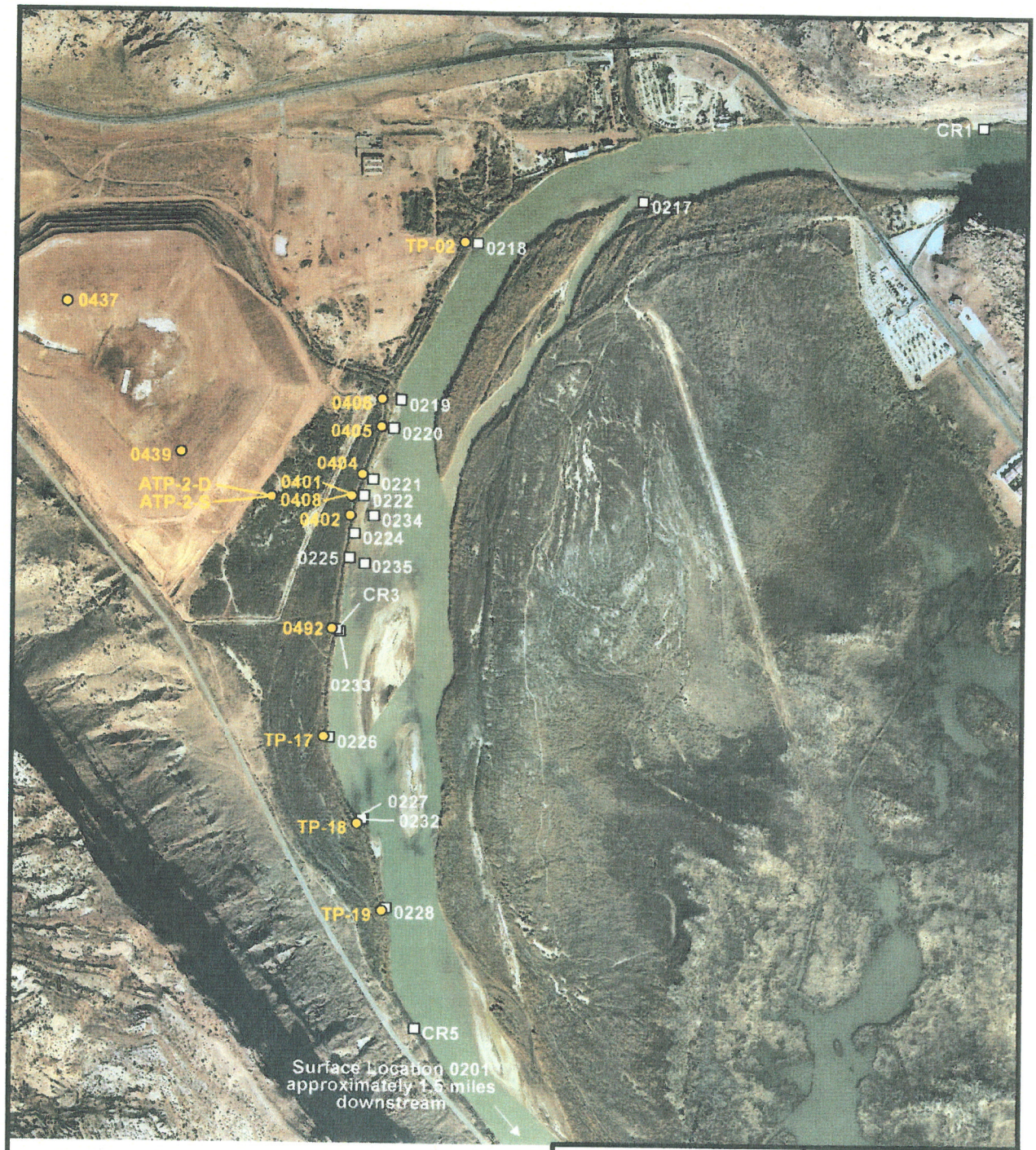
Summary

Results were reported in correct units for all analytes requested. Appropriate contract-required laboratory qualifiers were used. Appropriate TALs were used, and the required detection limits were met when possible or an explanation of why they were not met was given in the laboratory case narrative. All analytical quality control criteria were met except as qualified on the Ground Water Quality Data by Parameter, Surface Water Quality by Parameter, or equipment/trip blank database printouts. The meaning of data qualifiers is defined on the database printouts or defined in the USEPA Contract Laboratory Program Statement of Work for Inorganic Analysis, Multi-Media Multi-Concentration, Document Number ILMO2.0, 1991. All data in this package are considered validated and may be treated as final results.

Laboratory Validation Lead: Steve Donivan — Steve Donivan — 10-5-04 — Date

Field Activities Validation Lead: Steve Donivan for JP — Jeff Price — 10-5-04 — Date

SAMPLING LOCATION MAP



n:\moa\599\0005\01\004\x00834\x00834C0.apr smithw 9/22/2004, 10:15

FIELD VERIFICATION CHECKLIST

Water Sampling Field Activities Verification Checklist

Project	Moab, Utah	Date(s) of Water Sampling	August 9-13, 2004
Date(s) of Verification	09/21/04	Name of Verifier	Jeff Price

	Response (Yes, No, NA)	Comments
1. Is the SAP the primary document directing field procedures?	Yes	
List other documents, SOP's, instructions.	NA	
2. Were the sampling locations specified in the planning documents sampled?	Yes	
3. Was a pre-trip calibration conducted as specified in the above named documents?	Yes	
4. Was an operational check of the field equipment conducted twice daily?	Yes	
Did the operational checks meet criteria?	Yes	
5. Were the number and types (alkalinity, temperature, Ec, pH, turbidity, DO, ORP) of field measurements taken as specified?	Yes	
6. Was the Category of the well documented?	Yes	
7. Were the following conditions met when purging a Category I well:		
Was one pump/tubing volume purged prior to sampling?	Yes	
Did the water level stabilize prior to sampling?	Yes	
Did pH, specific conductance, and turbidity measurements stabilize prior to sampling?	Yes	
Was the flow rate less than 500 mL/min?	Yes	
If a portable pump was used, was there a 4 hour delay between pump installation and sampling?	NA	

Water Sampling Field Activities Verification Checklist (continued)

8. Were the following conditions met when purging a Category II well:

   Was the flow rate less than 500 mL/min? NA _____

   Was one pump/tubing volume removed prior to sampling? NA _____

9. Were duplicates taken at a frequency of one per 20 samples? Yes _____

10. Were equipment blanks taken at a frequency of one per 20 samples that were collected with nondedicated equipment? Yes _____

11. Were trip blanks prepared and included with each shipment of VOC samples? NA _____

12. Were QC samples assigned a fictitious site identification number? Yes _____

    Was the true identity of the samples recorded on the Quality Assurance Sample Log? Yes _____

13. Were samples collected in the containers specified? Yes _____

14. Were samples filtered and preserved as specified? Yes _____

15. Were the number and types of samples collected as specified? Yes _____

16. Were chain of custody records completed and was sample custody maintained? Yes _____

17. Are field data sheets signed and dated by both team members? Yes _____

18. Was all other pertinent information documented on the field data sheets? Yes _____

19. Was the presence or absence of ice in the cooler documented at every sample location? Yes _____

20. Were water levels measured at the locations specified in the planning documents? Yes _____

WATER QUALITY DATA

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Disposal Site
REPORT DATE: 9/29/2004 10:08 am

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Alkalinity, Total (As CaCO3	mg/L	0201	SL, RIV	08/09/2004	0001	0.50 - 0.50	145			#	-	-
	mg/L	0217	SL, RIV	08/12/2004	0001	1.50 - 2.00	168			#	-	-
	mg/L	0218	SL	08/10/2004	0001	0.50 - 1.00	158			#	-	-
	mg/L	0219	SL, RIV	08/11/2004	0001	1.00 - 1.00	162			#	-	-
	mg/L	0220	SL, RIV	08/11/2004	0001	0.50 - 1.00	165			#	-	-
	mg/L	0221	SL, RIV	08/11/2004	0001	0.50 - 0.83	170			#	-	-
	mg/L	0222	SL, RIV	08/11/2004	0001	0.50 - 1.00	155			#	-	-
	mg/L	0224	SL, RIV	08/11/2004	0001	1.00 - 1.00	162			#	-	-
	mg/L	0225	SL, RIV	08/11/2004	0001	0.50 - 0.50	168			#	-	-
	mg/L	0226	SL, RIV	08/12/2004	0001	0.67 - 1.00	160			#	-	-
	mg/L	0227	SL, RIV	08/12/2004	0001	0.00 - 0.00	150			#	-	-
	mg/L	0228	SL, RIV	08/12/2004	0001	0.00 - 0.00	154			#	-	-
	mg/L	0232	SL, RIV	08/12/2004	0001	0.00 - 0.00	159			#	-	-
	mg/L	0233	SL, RIV	08/11/2004	0001	0.50 - 1.50	158			#	-	-
	mg/L	0234	SL, RIV	08/12/2004	0001	0.50 - 1.00	167			#	-	-
	mg/L	0235	SL, RIV	08/11/2004	0001	1.00 - 1.00	126			#	-	-
	mg/L	0401	WL	08/11/2004	0001	17.00 - 17.00	843		F	#	-	-
	mg/L	0402	WL	08/12/2004	0001	18.00 - 18.00	910		F	#	-	-
	mg/L	0404	WL	08/11/2004	0001	17.00 - 17.00	803		F	#	-	-
	mg/L	0405	WL	08/11/2004	0001	19.00 - 19.00	725		F	#	-	-
	mg/L	0406	WL	08/11/2004	0001	17.00 - 17.00	614		F	#	-	-
	mg/L	0408	WL	08/11/2004	0001	26.00 - 26.00	1015		F	#	-	-
	mg/L	0437	WL	08/10/2004	0001	98.00 - 98.00	662		F	#	-	-
	mg/L	0439	WL	08/10/2004	0001	118.00 - 118.00	820		F	#	-	-
	mg/L	0492	WL	08/11/2004	0001	19.00 - 19.00	1039		F	#	-	-
	mg/L	ATP-2-D	WL, PZ	08/10/2004	0001	0.00 - 0.00	70		F	#	-	-

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Disposal Site
REPORT DATE: 9/29/2004 10:08 am

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Alkalinity, Total (As CaCO3	mg/L	ATP-2-S	WL, PZ	08/10/2004	0001	0.00 - 0.00	392		F	#	-	-
	mg/L	CR1	SL, RIV	08/09/2004	0001	0.33 - 0.67	135			#	-	-
	mg/L	CR3	SL, RIV	08/11/2004	0001	0.50 - 0.50	155			#	-	-
	mg/L	CR5	SL, RIV	08/09/2004	0001	0.50 - 1.00	155			#	-	-
	mg/L	TP-02	WL	08/10/2004	0001	31.00 - 31.00	597		F	#	-	-
	mg/L	TP-17	WL	08/12/2004	0001	31.00 - 31.00	166		F	#	-	-
	mg/L	TP-18	WL	08/12/2004	0001	23.00 - 23.00	179		F	#	-	-
	mg/L	TP-19	WL	08/12/2004	0001	31.00 - 31.00	215		F	#	-	-
Ammonia Total as N	mg/L	0201	SL, RIV	08/09/2004	0001	0.50 - 0.50	0.1	U		#	0.1	-
	mg/L	0217	SL, RIV	08/12/2004	0001	1.50 - 2.00	0.1	U		#	0.1	-
	mg/L	0218	SL	08/10/2004	0001	0.50 - 1.00	0.1	U		#	0.1	-
	mg/L	0219	SL, RIV	08/11/2004	0001	1.00 - 1.00	0.1	U		#	0.1	-
	mg/L	0220	SL, RIV	08/11/2004	0001	0.50 - 1.00	0.72			#	0.1	-
	mg/L	0221	SL, RIV	08/11/2004	0001	0.50 - 0.83	0.4			#	0.1	-
	mg/L	0222	SL, RIV	08/11/2004	0001	0.50 - 1.00	0.39			#	0.1	-
	mg/L	0224	SL, RIV	08/11/2004	0001	1.00 - 1.00	0.17			#	0.1	-
	mg/L	0225	SL, RIV	08/11/2004	0001	0.50 - 0.50	0.11			#	0.1	-
	mg/L	0226	SL, RIV	08/12/2004	0001	0.67 - 1.00	1.3			#	0.1	-
	mg/L	0227	SL, RIV	08/12/2004	0001	0.00 - 0.00	0.49			#	0.1	-
	mg/L	0228	SL, RIV	08/12/2004	0001	0.00 - 0.00	0.23			#	0.1	-
	mg/L	0232	SL, RIV	08/12/2004	0001	0.00 - 0.00	0.33			#	0.1	-
	mg/L	0233	SL, RIV	08/11/2004	0001	0.50 - 1.50	1.1			#	0.1	-
	mg/L	0234	SL, RIV	08/12/2004	0001	0.50 - 1.00	0.39			#	0.1	-
	mg/L	0235	SL, RIV	08/11/2004	0001	1.00 - 1.00	1.5			#	0.1	-
	mg/L	0401	WL	08/11/2004	0001	17.00 - 17.00	520		F	#	50	-
	mg/L	0402	WL	08/12/2004	0001	18.00 - 18.00	630		F	#	50	-

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Disposal Site
REPORT DATE: 9/29/2004 10:08 am

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Ammonia Total as N	mg/L	0404	WL	08/11/2004	0001	17.00 - 17.00	300		F	#	50	-
	mg/L	0405	WL	08/11/2004	0001	19.00 - 19.00	470		F	#	50	-
	mg/L	0406	WL	08/11/2004	0001	17.00 - 17.00	420		F	#	50	-
	mg/L	0408	WL	08/11/2004	0001	26.00 - 26.00	770		F	#	50	-
	mg/L	0437	WL	08/10/2004	0001	98.00 - 98.00	0.1	U	F	#	0.1	-
	mg/L	0439	WL	08/10/2004	0001	118.00 - 118.00	16		F	#	0.5	-
	mg/L	0492	WL	08/11/2004	0001	19.00 - 19.00	82		F	#	5	-
	mg/L	ATP-2-D	WL, PZ	08/10/2004	0001	0.00 - 0.00	610		F	#	50	-
	mg/L	ATP-2-S	WL, PZ	08/10/2004	0001	0.00 - 0.00	510		F	#	50	-
	mg/L	CR1	SL, RIV	08/09/2004	0001	0.33 - 0.67	0.1	U		#	0.1	-
	mg/L	CR1	SL, RIV	08/09/2004	0002	0.33 - 0.67	0.16			#	0.1	-
	mg/L	CR3	SL, RIV	08/11/2004	0001	0.50 - 0.50	1.3			#	0.1	-
	mg/L	CR5	SL, RIV	08/09/2004	0001	0.50 - 1.00	0.1			#	0.1	-
	mg/L	TP-02	WL	08/10/2004	0001	31.00 - 31.00	1.5		F	#	0.1	-
	mg/L	TP-17	WL	08/12/2004	0001	31.00 - 31.00	3.4		F	#	0.1	-
	mg/L	TP-18	WL	08/12/2004	0001	23.00 - 23.00	3.5		F	#	0.1	-
	mg/L	TP-18	WL	08/12/2004	0002	23.00 - 23.00	3.7		F	#	0.1	-
	mg/L	TP-19	WL	08/12/2004	0001	31.00 - 31.00	3.4		F	#	0.1	-
Chloride	mg/L	0201	SL, RIV	08/09/2004	0001	0.50 - 0.50	99			#	4	-
	mg/L	0217	SL, RIV	08/12/2004	0001	1.50 - 2.00	95			#	2	-
	mg/L	0218	SL	08/10/2004	0001	0.50 - 1.00	96			#	4	-
	mg/L	0219	SL, RIV	08/11/2004	0001	1.00 - 1.00	97			#	4	-
	mg/L	0220	SL, RIV	08/11/2004	0001	0.50 - 1.00	95			#	2	-
	mg/L	0221	SL, RIV	08/11/2004	0001	0.50 - 0.83	93			#	4	-
	mg/L	0222	SL, RIV	08/11/2004	0001	0.50 - 1.00	92			#	4	-
	mg/L	0224	SL, RIV	08/11/2004	0001	1.00 - 1.00	91			#	4	-

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Disposal Site
REPORT DATE: 9/29/2004 10:08 am

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Chloride	mg/L	0225	SL, RIV	08/11/2004	0001	0.50 - 0.50	93			#	2	-
	mg/L	0226	SL, RIV	08/12/2004	0001	0.67 - 1.00	240			#	4	-
	mg/L	0227	SL, RIV	08/12/2004	0001	0.00 - 0.00	160			#	4	-
	mg/L	0228	SL, RIV	08/12/2004	0001	0.00 - 0.00	140			#	2	-
	mg/L	0232	SL, RIV	08/12/2004	0001	0.00 - 0.00	150			#	4	-
	mg/L	0233	SL, RIV	08/11/2004	0001	0.50 - 1.50	150			#	4	-
	mg/L	0234	SL, RIV	08/12/2004	0001	0.50 - 1.00	95			#	2	-
	mg/L	0235	SL, RIV	08/11/2004	0001	1.00 - 1.00	120			#	2	-
	mg/L	0401	WL	08/11/2004	0001	17.00 - 17.00	1700		F	#	40	-
	mg/L	0402	WL	08/12/2004	0001	18.00 - 18.00	1700		F	#	40	-
	mg/L	0404	WL	08/11/2004	0001	17.00 - 17.00	1100		F	#	40	-
	mg/L	0405	WL	08/11/2004	0001	19.00 - 19.00	1300		F	#	40	-
	mg/L	0406	WL	08/11/2004	0001	17.00 - 17.00	790		F	#	40	-
	mg/L	0408	WL	08/11/2004	0001	26.00 - 26.00	2200		F	#	100	-
	mg/L	0437	WL	08/10/2004	0001	98.00 - 98.00	1500		F	#	20	-
	mg/L	0439	WL	08/10/2004	0001	118.00 - 118.00	1000		F	#	20	-
	mg/L	0492	WL	08/11/2004	0001	19.00 - 19.00	11000		F	#	200	-
	mg/L	ATP-2-D	WL, PZ	08/10/2004	0001	0.00 - 0.00	50000		F	#	1000	-
	mg/L	ATP-2-S	WL, PZ	08/10/2004	0001	0.00 - 0.00	2800		F	#	40	-
	mg/L	CR1	SL, RIV	08/09/2004	0001	0.33 - 0.67	92			#	4	-
	mg/L	CR1	SL, RIV	08/09/2004	0002	0.33 - 0.67	93			#	4	-
	mg/L	CR3	SL, RIV	08/11/2004	0001	0.50 - 0.50	170			#	4	-
	mg/L	CR5	SL, RIV	08/09/2004	0001	0.50 - 1.00	100			#	4	-
	mg/L	TP-02	WL	08/10/2004	0001	31.00 - 31.00	460		F	#	10	-
	mg/L	TP-17	WL	08/12/2004	0001	31.00 - 31.00	56000		F	#	1000	-
	mg/L	TP-18	WL	08/12/2004	0001	23.00 - 23.00	58000		F	#	1000	-

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Disposal Site
REPORT DATE: 9/29/2004 10:08 am

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Chloride	mg/L	TP-18	WL	08/12/2004	0002	23.00 - 23.00	57000		F	#	1000	-
	mg/L	TP-19	WL	08/12/2004	0001	31.00 - 31.00	58000		F	#	1000	-
Dissolved Oxygen	mg/L	0201	SL, RIV	08/09/2004	N001	0.50 - 0.50	6.78			#	-	-
	mg/L	0217	SL, RIV	08/12/2004	N001	1.50 - 2.00	6.95			#	-	-
	mg/L	0219	SL, RIV	08/11/2004	N001	1.00 - 1.00	6.56			#	-	-
	mg/L	0220	SL, RIV	08/11/2004	N001	0.50 - 1.00	7.01			#	-	-
	mg/L	0221	SL, RIV	08/11/2004	N001	0.50 - 0.83	7.42			#	-	-
	mg/L	0222	SL, RIV	08/11/2004	N001	0.50 - 1.00	7.54			#	-	-
	mg/L	0224	SL, RIV	08/11/2004	N001	1.00 - 1.00	6.98			#	-	-
	mg/L	0225	SL, RIV	08/11/2004	N001	0.50 - 0.50	8.07			#	-	-
	mg/L	0226	SL, RIV	08/12/2004	N001	0.67 - 1.00	8.80			#	-	-
	mg/L	0227	SL, RIV	08/12/2004	N001	0.00 - 0.00	9.31			#	-	-
	mg/L	0228	SL, RIV	08/12/2004	N001	0.00 - 0.00	8.37			#	-	-
	mg/L	0232	SL, RIV	08/12/2004	N001	0.00 - 0.00	8.87			#	-	-
	mg/L	0233	SL, RIV	08/11/2004	N001	0.50 - 1.50	9.30			#	-	-
	mg/L	0234	SL, RIV	08/12/2004	N001	0.50 - 1.00	7.57			#	-	-
	mg/L	0235	SL, RIV	08/11/2004	N001	1.00 - 1.00	10.26			#	-	-
	mg/L	0401	WL	08/11/2004	N001	17.00 - 17.00	1.28		F	#	-	-
	mg/L	0402	WL	08/12/2004	N001	18.00 - 18.00	1.14		F	#	-	-
	mg/L	0404	WL	08/11/2004	N001	17.00 - 17.00	2.22		F	#	-	-
	mg/L	0405	WL	08/11/2004	N001	19.00 - 19.00	1.00		F	#	-	-
	mg/L	0406	WL	08/11/2004	N001	17.00 - 17.00	1.41		F	#	-	-
	mg/L	0408	WL	08/11/2004	N001	26.00 - 26.00	1.38		F	#	-	-
	mg/L	0437	WL	08/10/2004	N001	98.00 - 98.00	0.91		F	#	-	-
	mg/L	0439	WL	08/10/2004	N001	118.00 - 118.00	0.88		F	#	-	-
	mg/L	0492	WL	08/11/2004	N001	19.00 - 19.00	0.91		F	#	-	-

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Disposal Site
REPORT DATE: 9/29/2004 10:08 am

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Dissolved Oxygen	mg/L	ATP-2-D	WL, PZ	08/10/2004	N001	0.00 - 0.00	0.22		F	#	-	-
	mg/L	ATP-2-S	WL, PZ	08/10/2004	N001	0.00 - 0.00	1.19		F	#	-	-
	mg/L	CR1	SL, RIV	08/09/2004	N001	0.33 - 0.67	6.84			#	-	-
	mg/L	CR3	SL, RIV	08/11/2004	N001	0.50 - 0.50	9.37			#	-	-
	mg/L	CR5	SL, RIV	08/09/2004	N001	0.50 - 1.00	6.90			#	-	-
	mg/L	TP-02	WL	08/10/2004	N001	31.00 - 31.00	0.97		F	#	-	-
	mg/L	TP-17	WL	08/12/2004	N001	31.00 - 31.00	2.34		F	#	-	-
	mg/L	TP-18	WL	08/12/2004	N001	23.00 - 23.00	2.22		F	#	-	-
	mg/L	TP-19	WL	08/12/2004	N001	31.00 - 31.00	-0.21		F	#	-	-
Oxidation Reduction Potent	mV	0201	SL, RIV	08/09/2004	N001	0.50 - 0.50	58.3			#	-	-
	mV	0217	SL, RIV	08/12/2004	N001	1.50 - 2.00	-66			#	-	-
	mV	0218	SL	08/10/2004	N001	0.50 - 1.00	60.2			#	-	-
	mV	0219	SL, RIV	08/11/2004	N001	1.00 - 1.00	119			#	-	-
	mV	0220	SL, RIV	08/11/2004	N001	0.50 - 1.00	55.7			#	-	-
	mV	0221	SL, RIV	08/11/2004	N001	0.50 - 0.83	84			#	-	-
	mV	0222	SL, RIV	08/11/2004	N001	0.50 - 1.00	70.2			#	-	-
	mV	0224	SL, RIV	08/11/2004	N001	1.00 - 1.00	124.2			#	-	-
	mV	0225	SL, RIV	08/11/2004	N001	0.50 - 0.50	69			#	-	-
	mV	0226	SL, RIV	08/12/2004	N001	0.67 - 1.00	7.8			#	-	-
	mV	0227	SL, RIV	08/12/2004	N001	0.00 - 0.00	-29			#	-	-
	mV	0228	SL, RIV	08/12/2004	N001	0.00 - 0.00	-209			#	-	-
	mV	0232	SL, RIV	08/12/2004	N001	0.00 - 0.00	24.8			#	-	-
	mV	0233	SL, RIV	08/11/2004	N001	0.50 - 1.50	38.2			#	-	-
	mV	0234	SL, RIV	08/12/2004	N001	0.50 - 1.00	97			#	-	-
	mV	0235	SL, RIV	08/11/2004	N001	1.00 - 1.00	69.3			#	-	-
	mV	0401	WL	08/11/2004	N001	17.00 - 17.00	137		F	#	-	-

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Disposal Site
REPORT DATE: 9/29/2004 10:08 am

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Oxidation Reduction Potent	mV	0402	WL	08/12/2004	N001	18.00 - 18.00	194		F	#	-	-
	mV	0404	WL	08/11/2004	N001	17.00 - 17.00	156.7		F	#	-	-
	mV	0405	WL	08/11/2004	N001	19.00 - 19.00	119.4		F	#	-	-
	mV	0406	WL	08/11/2004	N001	17.00 - 17.00	195		F	#	-	-
	mV	0408	WL	08/11/2004	N001	26.00 - 26.00	141		F	#	-	-
	mV	0437	WL	08/10/2004	N001	98.00 - 98.00	132		F	#	-	-
	mV	0439	WL	08/10/2004	N001	118.00 - 118.00	183.0		F	#	-	-
	mV	0492	WL	08/11/2004	N001	19.00 - 19.00	-98		F	#	-	-
	mV	ATP-2-D	WL, PZ	08/10/2004	N001	0.00 - 0.00	-281		F	#	-	-
	mV	ATP-2-S	WL, PZ	08/10/2004	N001	0.00 - 0.00	-194		F	#	-	-
	mV	CR1	SL, RIV	08/09/2004	N001	0.33 - 0.67	151.3			#	-	-
	mV	CR3	SL, RIV	08/11/2004	N001	0.50 - 0.50	27.7			#	-	-
	mV	CR5	SL, RIV	08/09/2004	N001	0.50 - 1.00	60.8			#	-	-
	mV	TP-02	WL	08/10/2004	N001	31.00 - 31.00	11.4		F	#	-	-
	mV	TP-17	WL	08/12/2004	N001	31.00 - 31.00	-105		F	#	-	-
	mV	TP-18	WL	08/12/2004	N001	23.00 - 23.00	-92.9		F	#	-	-
	mV	TP-19	WL	08/12/2004	N001	31.00 - 31.00	-342.5		F	#	-	-
pH	s.u.	0201	SL, RIV	08/09/2004	N001	0.50 - 0.50	8.16			#	-	-
	s.u.	0217	SL, RIV	08/12/2004	N001	1.50 - 2.00	8.31			#	-	-
	s.u.	0218	SL	08/10/2004	N001	0.50 - 1.00	8.28			#	-	-
	s.u.	0219	SL, RIV	08/11/2004	N001	1.00 - 1.00	8.26			#	-	-
	s.u.	0220	SL, RIV	08/11/2004	N001	0.50 - 1.00	8.35			#	-	-
	s.u.	0221	SL, RIV	08/11/2004	N001	0.50 - 0.83	8.36			#	-	-
	s.u.	0222	SL, RIV	08/11/2004	N001	0.50 - 1.00	8.23			#	-	-
	s.u.	0224	SL, RIV	08/11/2004	N001	1.00 - 1.00	8.36			#	-	-
	s.u.	0225	SL, RIV	08/11/2004	N001	0.50 - 0.50	8.45			#	-	-

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Disposal Site
REPORT DATE: 9/29/2004 10:08 am

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
pH	s.u.	0226	SL, RIV	08/12/2004	N001	0.67 - 1.00	8.47			#	-	-
	s.u.	0227	SL, RIV	08/12/2004	N001	0.00 - 0.00	8.49			#	-	-
	s.u.	0228	SL, RIV	08/12/2004	N001	0.00 - 0.00	8.45			#	-	-
	s.u.	0232	SL, RIV	08/12/2004	N001	0.00 - 0.00	8.40			#	-	-
	s.u.	0233	SL, RIV	08/11/2004	N001	0.50 - 1.50	8.55			#	-	-
	s.u.	0234	SL, RIV	08/12/2004	N001	0.50 - 1.00	8.29			#	-	-
	s.u.	0235	SL, RIV	08/11/2004	N001	1.00 - 1.00	8.49			#	-	-
	s.u.	0401	WL	08/11/2004	N001	17.00 - 17.00	6.73		F	#	-	-
	s.u.	0402	WL	08/12/2004	N001	18.00 - 18.00	6.70		F	#	-	-
	s.u.	0404	WL	08/11/2004	N001	17.00 - 17.00	6.77		F	#	-	-
	s.u.	0405	WL	08/11/2004	N001	19.00 - 19.00	6.78		F	#	-	-
	s.u.	0406	WL	08/11/2004	N001	17.00 - 17.00	6.88		F	#	-	-
	s.u.	0408	WL	08/11/2004	N001	26.00 - 26.00	6.82		F	#	-	-
	s.u.	0437	WL	08/10/2004	N001	98.00 - 98.00	7.35		F	#	-	-
	s.u.	0439	WL	08/10/2004	N001	118.00 - 118.00	6.80		F	#	-	-
	s.u.	0492	WL	08/11/2004	N001	19.00 - 19.00	7.02		F	#	-	-
	s.u.	ATP-2-D	WL, PZ	08/10/2004	N001	0.00 - 0.00	7.32		F	#	-	-
	s.u.	ATP-2-S	WL, PZ	08/10/2004	N001	0.00 - 0.00	7.59		F	#	-	-
	s.u.	CR1	SL, RIV	08/09/2004	N001	0.33 - 0.67	8.19			#	-	-
	s.u.	CR3	SL, RIV	08/11/2004	N001	0.50 - 0.50	8.59			#	-	-
	s.u.	CR5	SL, RIV	08/09/2004	N001	0.50 - 1.00	8.19			#	-	-
	s.u.	TP-02	WL	08/10/2004	N001	31.00 - 31.00	7.07		F	#	-	-
	s.u.	TP-17	WL	08/12/2004	N001	31.00 - 31.00	7.02		F	#	-	-
	s.u.	TP-18	WL	08/12/2004	N001	23.00 - 23.00	6.99		F	#	-	-
	s.u.	TP-19	WL	08/12/2004	N001	31.00 - 31.00	6.61		F	#	-	-
Specific Conductance	umhos/cm	0201	SL, RIV	08/09/2004	N001	0.50 - 0.50	1322			#	-	-

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Disposal Site
REPORT DATE: 9/29/2004 10:08 am

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Specific Conductance	umhos/cm	0217	SL, RIV	08/12/2004	N001	1.50 - 2.00	1467			#	-	-
	umhos/cm	0218	SL	08/10/2004	N001	0.50 - 1.00	1280			#	-	-
	umhos/cm	0219	SL, RIV	08/11/2004	N001	1.00 - 1.00	1375			#	-	-
	umhos/cm	0220	SL, RIV	08/11/2004	N001	0.50 - 1.00	1365			#	-	-
	umhos/cm	0221	SL, RIV	08/11/2004	N001	0.50 - 0.83	1342			#	-	-
	umhos/cm	0222	SL, RIV	08/11/2004	N001	0.50 - 1.00	1456			#	-	-
	umhos/cm	0224	SL, RIV	08/11/2004	N001	1.00 - 1.00	1303			#	-	-
	umhos/cm	0225	SL, RIV	08/11/2004	N001	0.50 - 0.50	1302			#	-	-
	umhos/cm	0226	SL, RIV	08/12/2004	N001	0.67 - 1.00	3177			#	-	-
	umhos/cm	0227	SL, RIV	08/12/2004	N001	0.00 - 0.00	2896			#	-	-
	umhos/cm	0228	SL, RIV	08/12/2004	N001	0.00 - 0.00	1885			#	-	-
	umhos/cm	0232	SL, RIV	08/12/2004	N001	0.00 - 0.00	1606			#	-	-
	umhos/cm	0233	SL, RIV	08/11/2004	N001	0.50 - 1.50	1630			#	-	-
	umhos/cm	0234	SL, RIV	08/12/2004	N001	0.50 - 1.00	1397			#	-	-
	umhos/cm	0235	SL, RIV	08/11/2004	N001	1.00 - 1.00	1424			#	-	-
	umhos/cm	0401	WL	08/11/2004	N001	17.00 - 17.00	18241		F	#	-	-
	umhos/cm	0402	WL	08/12/2004	N001	18.00 - 18.00	18023		F	#	-	-
	umhos/cm	0404	WL	08/11/2004	N001	17.00 - 17.00	19264		F	#	-	-
	umhos/cm	0405	WL	08/11/2004	N001	19.00 - 19.00	16083		F	#	-	-
	umhos/cm	0406	WL	08/11/2004	N001	17.00 - 17.00	14517		F	#	-	-
	umhos/cm	0408	WL	08/11/2004	N001	26.00 - 26.00	25388		F	#	-	-
	umhos/cm	0437	WL	08/10/2004	N001	98.00 - 98.00	12111		F	#	-	-
	umhos/cm	0439	WL	08/10/2004	N001	118.00 - 118.00	9584		F	#	-	-
	umhos/cm	0492	WL	08/11/2004	N001	19.00 - 19.00	47521		F	#	-	-
	umhos/cm	ATP-2-D	WL, PZ	08/10/2004	N001	0.00 - 0.00	121839		F	#	-	-
	umhos/cm	ATP-2-S	WL, PZ	08/10/2004	N001	0.00 - 0.00	20853		F	#	-	-

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Disposal Site
REPORT DATE: 9/29/2004 10:08 am

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Specific Conductance	umhos/cm	CR1	SL, RIV	08/09/2004	N001	0.33 - 0.67	1300			#	-	-
	umhos/cm	CR3	SL, RIV	08/11/2004	N001	0.50 - 0.50	1577			#	-	-
	umhos/cm	CR5	SL, RIV	08/09/2004	N001	0.50 - 1.00	1323			#	-	-
	umhos/cm	TP-02	WL	08/10/2004	N001	31.00 - 31.00	5038		F	#	-	-
	umhos/cm	TP-17	WL	08/12/2004	N001	31.00 - 31.00	135198		F	#	-	-
	umhos/cm	TP-18	WL	08/12/2004	N001	23.00 - 23.00	140602		F	#	-	-
	umhos/cm	TP-19	WL	08/12/2004	N001	31.00 - 31.00	136822		F	#	-	-
Sulfate	mg/L	0201	SL, RIV	08/09/2004	0001	0.50 - 0.50	360			#	10	-
	mg/L	0217	SL, RIV	08/12/2004	0001	1.50 - 2.00	360			#	5	-
	mg/L	0218	SL	08/10/2004	0001	0.50 - 1.00	350			#	10	-
	mg/L	0219	SL, RIV	08/11/2004	0001	1.00 - 1.00	350			#	10	-
	mg/L	0220	SL, RIV	08/11/2004	0001	0.50 - 1.00	360			#	5	-
	mg/L	0221	SL, RIV	08/11/2004	0001	0.50 - 0.83	350			#	10	-
	mg/L	0222	SL, RIV	08/11/2004	0001	0.50 - 1.00	350			#	10	-
	mg/L	0224	SL, RIV	08/11/2004	0001	1.00 - 1.00	340			#	10	-
	mg/L	0225	SL, RIV	08/11/2004	0001	0.50 - 0.50	350			#	5	-
	mg/L	0226	SL, RIV	08/12/2004	0001	0.67 - 1.00	380			#	10	-
	mg/L	0227	SL, RIV	08/12/2004	0001	0.00 - 0.00	360			#	10	-
	mg/L	0228	SL, RIV	08/12/2004	0001	0.00 - 0.00	360			#	5	-
	mg/L	0232	SL, RIV	08/12/2004	0001	0.00 - 0.00	380			#	10	-
	mg/L	0233	SL, RIV	08/11/2004	0001	0.50 - 1.50	370			#	10	-
	mg/L	0234	SL, RIV	08/12/2004	0001	0.50 - 1.00	370			#	5	-
	mg/L	0235	SL, RIV	08/11/2004	0001	1.00 - 1.00	380			#	5	-
	mg/L	0401	WL	08/11/2004	0001	17.00 - 17.00	7300		F	#	100	-
	mg/L	0402	WL	08/12/2004	0001	18.00 - 18.00	7600		F	#	100	-
	mg/L	0404	WL	08/11/2004	0001	17.00 - 17.00	4500		F	#	100	-

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Sulfate	mg/L	0405	WL	08/11/2004	0001	19.00 - 19.00	7100		F	#	100	-
	mg/L	0406	WL	08/11/2004	0001	17.00 - 17.00	6300		F	#	100	-
	mg/L	0408	WL	08/11/2004	0001	26.00 - 26.00	9300		F	#	250	-
	mg/L	0437	WL	08/10/2004	0001	98.00 - 98.00	4000		F	#	50	-
	mg/L	0439	WL	08/10/2004	0001	118.00 - 118.00	3500		F	#	50	-
	mg/L	0492	WL	08/11/2004	0001	19.00 - 19.00	15000		F	#	250	-
	mg/L	ATP-2-D	WL, PZ	08/10/2004	0001	0.00 - 0.00	5100		F	#	250	-
	mg/L	ATP-2-S	WL, PZ	08/10/2004	0001	0.00 - 0.00	7600		F	#	100	-
	mg/L	CR1	SL, RIV	08/09/2004	0001	0.33 - 0.67	350			#	10	-
	mg/L	CR1	SL, RIV	08/09/2004	0002	0.33 - 0.67	350			#	10	-
	mg/L	CR3	SL, RIV	08/11/2004	0001	0.50 - 0.50	360			#	10	-
	mg/L	CR5	SL, RIV	08/09/2004	0001	0.50 - 1.00	350			#	10	-
	mg/L	TP-02	WL	08/10/2004	0001	31.00 - 31.00	1500		F	#	25	-
	mg/L	TP-17	WL	08/12/2004	0001	31.00 - 31.00	4500		F	#	250	-
	mg/L	TP-18	WL	08/12/2004	0001	23.00 - 23.00	4600		F	#	250	-
	mg/L	TP-18	WL	08/12/2004	0002	23.00 - 23.00	4500		F	#	250	-
	mg/L	TP-19	WL	08/12/2004	0001	31.00 - 31.00	4400		F	#	250	-
Temperature	C	0201	SL, RIV	08/09/2004	N001	0.50 - 0.50	26.70			#	-	-
	C	0217	SL, RIV	08/12/2004	N001	1.50 - 2.00	27.45			#	-	-
	C	0218	SL	08/10/2004	N001	0.50 - 1.00	27.4			#	-	-
	C	0219	SL, RIV	08/11/2004	N001	1.00 - 1.00	24.87			#	-	-
	C	0220	SL, RIV	08/11/2004	N001	0.50 - 1.00	26.49			#	-	-
	C	0221	SL, RIV	08/11/2004	N001	0.50 - 0.83	26.79			#	-	-
	C	0222	SL, RIV	08/11/2004	N001	0.50 - 1.00	28.64			#	-	-
	C	0224	SL, RIV	08/11/2004	N001	1.00 - 1.00	28.68			#	-	-
	C	0225	SL, RIV	08/11/2004	N001	0.50 - 0.50	30.31			#	-	-

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Disposal Site
REPORT DATE: 9/29/2004 10:08 am

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Temperature	C	0226	SL, RIV	08/12/2004	N001	0.67 - 1.00	26.89			#	-	-
	C	0227	SL, RIV	08/12/2004	N001	0.00 - 0.00	28.97			#	-	-
	C	0228	SL, RIV	08/12/2004	N001	0.00 - 0.00	28.10			#	-	-
	C	0232	SL, RIV	08/12/2004	N001	0.00 - 0.00	28.32			#	-	-
	C	0233	SL, RIV	08/11/2004	N001	0.50 - 1.50	27.50			#	-	-
	C	0234	SL, RIV	08/12/2004	N001	0.50 - 1.00	25.43			#	-	-
	C	0235	SL, RIV	08/11/2004	N001	1.00 - 1.00	36.23			#	-	-
	C	0401	WL	08/11/2004	N001	17.00 - 17.00	19.74		F	#	-	-
	C	0402	WL	08/12/2004	N001	18.00 - 18.00	17.11		F	#	-	-
	C	0404	WL	08/11/2004	N001	17.00 - 17.00	18.05		F	#	-	-
	C	0405	WL	08/11/2004	N001	19.00 - 19.00	18.36		F	#	-	-
	C	0406	WL	08/11/2004	N001	17.00 - 17.00	17.98		F	#	-	-
	C	0408	WL	08/11/2004	N001	26.00 - 26.00	20.46		F	#	-	-
	C	0437	WL	08/10/2004	N001	98.00 - 98.00	20.11		F	#	-	-
	C	0439	WL	08/10/2004	N001	118.00 - 118.00	19.91		F	#	-	-
	C	0492	WL	08/11/2004	N001	19.00 - 19.00	17.23		F	#	-	-
	C	ATP-2-D	WL, PZ	08/10/2004	N001	0.00 - 0.00	22.65		F	#	-	-
	C	ATP-2-S	WL, PZ	08/10/2004	N001	0.00 - 0.00	21.76		F	#	-	-
	C	CR1	SL, RIV	08/09/2004	N001	0.33 - 0.67	27.9			#	-	-
	C	CR3	SL, RIV	08/11/2004	N001	0.50 - 0.50	27.90			#	-	-
	C	CR5	SL, RIV	08/09/2004	N001	0.50 - 1.00	26.60			#	-	-
	C	TP-02	WL	08/10/2004	N001	31.00 - 31.00	21.14		F	#	-	-
	C	TP-17	WL	08/12/2004	N001	31.00 - 31.00	17.59		F	#	-	-
	C	TP-18	WL	08/12/2004	N001	23.00 - 23.00	19.86		F	#	-	-
	C	TP-19	WL	08/12/2004	N001	31.00 - 31.00	17.52		F	#	-	-
Total Dissolved Solids	mg/L	0201	SL, RIV	08/09/2004	0001	0.50 - 0.50	930			#	20	-

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Disposal Site
REPORT DATE: 9/29/2004 10:08 am

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Total Dissolved Solids	mg/L	0217	SL, RIV	08/12/2004	0001	1.50 - 2.00	940			#	20	-
	mg/L	0218	SL	08/10/2004	0001	0.50 - 1.00	920			#	20	-
	mg/L	0219	SL, RIV	08/11/2004	0001	1.00 - 1.00	900			#	20	-
	mg/L	0220	SL, RIV	08/11/2004	0001	0.50 - 1.00	940			#	20	-
	mg/L	0221	SL, RIV	08/11/2004	0001	0.50 - 0.83	900			#	20	-
	mg/L	0222	SL, RIV	08/11/2004	0001	0.50 - 1.00	870			#	20	-
	mg/L	0224	SL, RIV	08/11/2004	0001	1.00 - 1.00	900			#	20	-
	mg/L	0225	SL, RIV	08/11/2004	0001	0.50 - 0.50	920			#	20	-
	mg/L	0226	SL, RIV	08/12/2004	0001	0.67 - 1.00	1200			#	20	-
	mg/L	0227	SL, RIV	08/12/2004	0001	0.00 - 0.00	1100			#	20	-
	mg/L	0228	SL, RIV	08/12/2004	0001	0.00 - 0.00	1000			#	20	-
	mg/L	0232	SL, RIV	08/12/2004	0001	0.00 - 0.00	1100			#	20	-
	mg/L	0233	SL, RIV	08/11/2004	0001	0.50 - 1.50	1100			#	20	-
	mg/L	0234	SL, RIV	08/12/2004	0001	0.50 - 1.00	940			#	20	-
	mg/L	0235	SL, RIV	08/11/2004	0001	1.00 - 1.00	960			#	20	-
	mg/L	0401	WL	08/11/2004	0001	17.00 - 17.00	14000		F	#	400	-
	mg/L	0402	WL	08/12/2004	0001	18.00 - 18.00	14000		F	#	400	-
	mg/L	0404	WL	08/11/2004	0001	17.00 - 17.00	16000		F	#	400	-
	mg/L	0405	WL	08/11/2004	0001	19.00 - 19.00	13000		F	#	400	-
	mg/L	0406	WL	08/11/2004	0001	17.00 - 17.00	11000		F	#	400	-
	mg/L	0408	WL	08/11/2004	0001	26.00 - 26.00	20000		F	#	400	-
	mg/L	0437	WL	08/10/2004	0001	98.00 - 98.00	9400		F	#	200	-
	mg/L	0439	WL	08/10/2004	0001	118.00 - 118.00	8200		F	#	200	-
	mg/L	0492	WL	08/11/2004	0001	19.00 - 19.00	42000		F	#	1000	-
	mg/L	ATP-2-D	WL, PZ	08/10/2004	0001	0.00 - 0.00	92000		F	#	2000	-
	mg/L	ATP-2-S	WL, PZ	08/10/2004	0001	0.00 - 0.00	16000		F	#	400	-

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Total Dissolved Solids	mg/L	CR1	SL, RIV	08/09/2004	0001	0.33 - 0.67	920			#	20	-
	mg/L	CR1	SL, RIV	08/09/2004	0002	0.33 - 0.67	890			#	20	-
	mg/L	CR3	SL, RIV	08/11/2004	0001	0.50 - 0.50	1100			#	20	-
	mg/L	CR5	SL, RIV	08/09/2004	0001	0.50 - 1.00	920			#	20	-
	mg/L	TP-02	WL	08/10/2004	0001	31.00 - 31.00	3700		F	#	80	-
	mg/L	TP-17	WL	08/12/2004	0001	31.00 - 31.00	100000		F	#	2000	-
	mg/L	TP-18	WL	08/12/2004	0001	23.00 - 23.00	110000		F	#	2000	-
	mg/L	TP-18	WL	08/12/2004	0002	23.00 - 23.00	110000		F	#	2000	-
	mg/L	TP-19	WL	08/12/2004	0001	31.00 - 31.00	110000		F	#	2000	-
Turbidity	NTU	0217	SL, RIV	08/12/2004	N001	1.50 - 2.00	240			#	-	-
	NTU	0218	SL	08/10/2004	N001	0.50 - 1.00	1000	>		#	-	-
	NTU	0220	SL, RIV	08/11/2004	N001	0.50 - 1.00	263			#	-	-
	NTU	0221	SL, RIV	08/11/2004	N001	0.50 - 0.83	1000	>		#	-	-
	NTU	0222	SL, RIV	08/11/2004	N001	0.50 - 1.00	1000	>		#	-	-
	NTU	0224	SL, RIV	08/11/2004	N001	1.00 - 1.00	1000	>		#	-	-
	NTU	0225	SL, RIV	08/11/2004	N001	0.50 - 0.50	248			#	-	-
	NTU	0226	SL, RIV	08/12/2004	N001	0.67 - 1.00	528			#	-	-
	NTU	0227	SL, RIV	08/12/2004	N001	0.00 - 0.00	192			#	-	-
	NTU	0228	SL, RIV	08/12/2004	N001	0.00 - 0.00	202			#	-	-
	NTU	0232	SL, RIV	08/12/2004	N001	0.00 - 0.00	1000	>		#	-	-
	NTU	0233	SL, RIV	08/11/2004	N001	0.50 - 1.50	334			#	-	-
	NTU	0234	SL, RIV	08/12/2004	N001	0.50 - 1.00	412			#	-	-
	NTU	0235	SL, RIV	08/11/2004	N001	1.00 - 1.00	96.0			#	-	-
	NTU	0401	WL	08/11/2004	N001	17.00 - 17.00	1.31		F	#	-	-
	NTU	0402	WL	08/12/2004	N001	18.00 - 18.00	0.82		F	#	-	-
	NTU	0404	WL	08/11/2004	N001	17.00 - 17.00	3.57		F	#	-	-

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Disposal Site
REPORT DATE: 9/29/2004 10:08 am

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Turbidity	NTU	0405	WL	08/11/2004	N001	19.00 - 19.00	4.54		F	#	-	-
	NTU	0406	WL	08/11/2004	N001	17.00 - 17.00	4.89		F	#	-	-
	NTU	0408	WL	08/11/2004	N001	26.00 - 26.00	9.47		F	#	-	-
	NTU	0437	WL	08/10/2004	N001	98.00 - 98.00	4.36		F	#	-	-
	NTU	0439	WL	08/10/2004	N001	118.00 - 118.00	7.78		F	#	-	-
	NTU	0492	WL	08/11/2004	N001	19.00 - 19.00	9.9		F	#	-	-
	NTU	ATP-2-D	WL, PZ	08/10/2004	N001	0.00 - 0.00	8.67		F	#	-	-
	NTU	ATP-2-S	WL, PZ	08/10/2004	N001	0.00 - 0.00	6.8		F	#	-	-
	NTU	CR1	SL, RIV	08/09/2004	N001	0.33 - 0.67	1000	>		#	-	-
	NTU	CR3	SL, RIV	08/11/2004	N001	0.50 - 0.50	279			#	-	-
	NTU	CR5	SL, RIV	08/09/2004	N001	0.50 - 1.00	1000	>		#	-	-
	NTU	TP-02	WL	08/10/2004	N001	31.00 - 31.00	10		F	#	-	-
	NTU	TP-17	WL	08/12/2004	N001	31.00 - 31.00	5.60		F	#	-	-
	NTU	TP-18	WL	08/12/2004	N001	23.00 - 23.00	5.49		F	#	-	-
	NTU	TP-19	WL	08/12/2004	N001	31.00 - 31.00	7.35		F	#	-	-
Uranium	mg/L	0201	SL, RIV	08/09/2004	0001	0.50 - 0.50	0.0064	E		#	1.2E-05	-
	mg/L	0217	SL, RIV	08/12/2004	0001	1.50 - 2.00	0.0061			#	1.2E-05	-
	mg/L	0218	SL	08/10/2004	0001	0.50 - 1.00	0.0094			#	1.2E-05	-
	mg/L	0219	SL, RIV	08/11/2004	0001	1.00 - 1.00	0.013			#	1.2E-05	-
	mg/L	0220	SL, RIV	08/11/2004	0001	0.50 - 1.00	0.014			#	1.2E-05	-
	mg/L	0221	SL, RIV	08/11/2004	0001	0.50 - 0.83	0.012			#	1.2E-05	-
	mg/L	0222	SL, RIV	08/11/2004	0001	0.50 - 1.00	0.011			#	1.2E-05	-
	mg/L	0224	SL, RIV	08/11/2004	0001	1.00 - 1.00	0.0093			#	1.2E-05	-
	mg/L	0225	SL, RIV	08/11/2004	0001	0.50 - 0.50	0.0087			#	1.2E-05	-
	mg/L	0226	SL, RIV	08/12/2004	0001	0.67 - 1.00	0.015			#	1.2E-05	-
	mg/L	0227	SL, RIV	08/12/2004	0001	0.00 - 0.00	0.0099			#	1.2E-05	-

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Disposal Site
REPORT DATE: 9/29/2004 10:08 am

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Uranium	mg/L	0228	SL, RIV	08/12/2004	0001	0.00 - 0.00	0.0083			#	1.2E-05	-
	mg/L	0232	SL, RIV	08/12/2004	0001	0.00 - 0.00	0.010			#	1.2E-05	-
	mg/L	0233	SL, RIV	08/11/2004	0001	0.50 - 1.50	0.012			#	1.2E-05	-
	mg/L	0234	SL, RIV	08/12/2004	0001	0.50 - 1.00	0.013			#	1.2E-05	-
	mg/L	0235	SL, RIV	08/11/2004	0001	1.00 - 1.00	0.013			#	1.2E-05	-
	mg/L	0401	WL	08/11/2004	0001	17.00 - 17.00	2.200		F	#	0.0012	-
	mg/L	0402	WL	08/12/2004	0001	18.00 - 18.00	2.400		F	#	0.0012	-
	mg/L	0404	WL	08/11/2004	0001	17.00 - 17.00	2.200		F	#	0.0012	-
	mg/L	0405	WL	08/11/2004	0001	19.00 - 19.00	1.300		F	#	0.0012	-
	mg/L	0406	WL	08/11/2004	0001	17.00 - 17.00	1.300		F	#	0.0012	-
	mg/L	0408	WL	08/11/2004	0001	26.00 - 26.00	2.800		F	#	0.0012	-
	mg/L	0437	WL	08/10/2004	0001	98.00 - 98.00	8.300		F	#	0.0012	-
	mg/L	0439	WL	08/10/2004	0001	118.00 - 118.00	0.950		F	#	0.00012	-
	mg/L	0492	WL	08/11/2004	0001	19.00 - 19.00	5.700		F	#	0.0012	-
	mg/L	ATP-2-D	WL, PZ	08/10/2004	0001	0.00 - 0.00	0.013		F	#	1.2E-05	-
	mg/L	ATP-2-S	WL, PZ	08/10/2004	0001	0.00 - 0.00	0.830		F	#	0.00012	-
	mg/L	CR1	SL, RIV	08/09/2004	0001	0.33 - 0.67	0.006			#	1.2E-05	-
	mg/L	CR1	SL, RIV	08/09/2004	0002	0.33 - 0.67	0.006			#	1.2E-05	-
	mg/L	CR3	SL, RIV	08/11/2004	0001	0.50 - 0.50	0.014			#	1.2E-05	-
	mg/L	CR5	SL, RIV	08/09/2004	0001	0.50 - 1.00	0.007			#	1.2E-05	-
	mg/L	TP-02	WL	08/10/2004	0001	31.00 - 31.00	12.000		F	#	0.0025	-
	mg/L	TP-17	WL	08/12/2004	0001	31.00 - 31.00	0.012		F	#	1.2E-05	-
	mg/L	TP-18	WL	08/12/2004	0001	23.00 - 23.00	0.015		F	#	1.2E-05	-
	mg/L	TP-18	WL	08/12/2004	0002	23.00 - 23.00	0.012		F	#	0.00012	-
	mg/L	TP-19	WL	08/12/2004	0001	31.00 - 31.00	0.00006	B	UF	#	1.2E-05	-

GENERAL WATER QUALITY DATA BY PARAMETER (USEE205) FOR SITE MOA01, Moab Disposal Site
REPORT DATE: 9/29/2004 10:08 am

PARAMETER	UNITS	LOCATION ID	LOC TYPE, SUBTYPE	SAMPLE: DATE	ID	DEPTH RANGE (FT BLS)	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY

RECORDS: SELECTED FROM USEE200 WHERE site_code='MOA01' AND quality_assurance = TRUE AND (data_validation_qualifiers IS NULL OR data_validation_qualifiers NOT LIKE '%R%' AND data_validation_qualifiers NOT LIKE '%X%') AND DATE_SAMPLED between #8/9/2004# and #8/12/2004#

SAMPLE ID CODES: 000X = Filtered sample (0.45 µm). N00X = Unfiltered sample. X = replicate number.

LOCATION TYPES: SL SURFACE LOCATION WL WELL

LOCATION SUBTYPES: PZ Piezometer RIV River

LAB QUALIFIERS:

*	Replicate analysis not within control limits.
+	Correlation coefficient for MSA < 0.995.
>	Result above upper detection limit.
A	TIC is a suspected aldol-condensation product.
B	Inorganic: Result is between the IDL and CRDL. Organic: Analyte also found in method blank.
C	Pesticide result confirmed by GC-MS.
D	Analyte determined in diluted sample.
E	Inorganic: Estimate value because of interference, see case narrative. Organic: Analyte exceeded calibration range of the GC-MS.
H	Holding time expired, value suspect.
I	Increased detection limit due to required dilution.
J	Estimated
M	GFAA duplicate injection precision not met.
N	Inorganic or radiochemical: Spike sample recovery not within control limits. Organic: Tentatively identified compund (TIC).
P	> 25% difference in detected pesticide or Arochlor concentrations between 2 columns.
S	Result determined by method of standard addition (MSA).
U	Analytical result below detection limit.
W	Post-digestion spike outside control limits while sample absorbance < 50% of analytical spike absorbance.
X	Laboratory defined (USEPA CLP organic) qualifier, see case narrative.
Y	Laboratory defined (USEPA CLP organic) qualifier, see case narrative.
Z	Laboratory defined (USEPA CLP organic) qualifier, see case narrative.

DATA QUALIFIERS:

F	Low flow sampling method used.	G	Possible grout contamination, pH > 9.	J	Estimated value.
L	Less than 3 bore volumes purged prior to sampling.	Q	Qualitative result due to sampling technique	R	Unusable result.
U	Parameter analyzed for but was not detected.	X	Location is undefined.		

QA QUALIFIER: # = validated according to Quality Assurance guidelines.

BLANKS REPORT (USEE810) FOR SITE MOA01, Moab Disposal Site
REPORT DATE: 9/29/2004 10:08 am

PARAMETER	UNITS	LOCATION ID	SAMPLE DATE	SAMPLE ID	SAMPLE TYPE	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION	UN-CERTAINTY
Ammonia Total as N	mg/L	0999	08/12/2004	0001	E	0.1	U		#	0.1	-
	mg/L	0999	08/12/2004	0002	E	0.1	U		#	0.1	-
Chloride	mg/L	0999	08/12/2004	0001	E	0.65			#	0.2	-
	mg/L	0999	08/12/2004	0002	E	0.2	U		#	0.2	-
Sulfate	mg/L	0999	08/12/2004	0001	E	0.5	U		#	0.5	-
	mg/L	0999	08/12/2004	0002	E	0.5	U		#	0.5	-
Total Dissolved Solids	mg/L	0999	08/12/2004	0001	E	20	U		#	20	-
	mg/L	0999	08/12/2004	0002	E	20	U		#	20	-
Uranium	mg/L	0999	08/12/2004	0001	E	0.00003	B	U	#	1.2E-05	-
	mg/L	0999	08/12/2004	0002	E	0.00003	B	U	#	1.2E-05	-

BLANKS REPORT (USEE810) FOR SITE MOA01, Moab Disposal Site
REPORT DATE: 9/29/2004 10:08 am

PARAMETER	UNITS	LOCATION ID	SAMPLE DATE	ID	SAMPLE TYPE	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION	UN-CERTAINTY

RECORDS: SELECTED FROM USEE810 WHERE site_code='MOA01' AND quality_assurance = TRUE AND (data_validation_qualifiers IS NULL OR data_validation_qualifiers NOT LIKE '%R%' AND data_validation_qualifiers NOT LIKE '%X%') AND DATE_SAMPLED between #8/9/2004# and #8/12/2004#

SAMPLE ID CODES: 000X = Filtered sample (0.45 µm). N00X = Unfiltered sample. X = replicate number.

SAMPLE TYPES: E EQUIPMENT BLANK

LAB QUALIFIERS:

*	Replicate analysis not within control limits.
+	Correlation coefficient for MSA < 0.995.
>	Result above upper detection limit.
A	TIC is a suspected aldol-condensation product.
B	Inorganic: Result is between the IDL and CRDL. Organic: Analyte also found in method blank.
C	Pesticide result confirmed by GC-MS.
D	Analyte determined in diluted sample.
E	Inorganic: Estimate value because of interference, see case narrative. Organic: Analyte exceeded calibration range of the GC-MS.
H	Holding time expired, value suspect.
I	Increased detection limit due to required dilution.
J	Estimated
M	GFAA duplicate injection precision not met.
N	Inorganic or radiochemical: Spike sample recovery not within control limits. Organic: Tentatively identified compund (TIC).
P	> 25% difference in detected pesticide or Arochlor concentrations between 2 columns.
S	Result determined by method of standard addition (MSA).
U	Analytical result below detection limit.
W	Post-digestion spike outside control limits while sample absorbance < 50% of analytical spike absorbance.
X	Laboratory defined (USEPA CLP organic) qualifier, see case narrative.
Y	Laboratory defined (USEPA CLP organic) qualifier, see case narrative.
Z	Laboratory defined (USEPA CLP organic) qualifier, see case narrative.

DATA QUALIFIERS:

F	Low flow sampling method used.	G	Possible grout contamination, pH > 9.	J	Estimated value.
L	Less than 3 bore volumes purged prior to sampling.	Q	Qualitative result due to sampling technique	R	Unusable result.
U	Parameter analyzed for but was not detected.	X	Location is undefined.		

QA QUALIFIER: # = validated according to Quality Assurance guidelines.

WATER LEVELS

STATIC WATER LEVELS (USEE700) FOR SITE MOA01, Moab Disposal Site
REPORT DATE: 10/13/2004 1:34 pm

LOCATION CODE	FLOW CODE	TOP OF CASING ELEVATION (FT)	MEASUREMENT		DEPTH FROM TOP OF CASING (FT)	WATER ELEVATION (FT)	WATER LEVEL FLAG
			DATE	TIME			
0401	O	3969.60	08/11/2004	11:30	16.52	3953.08	
0402	O	3968.63	08/12/2004	09:09	15.53	3953.10	
0404	O	3968.30	08/11/2004	09:57	14.83	3953.47	
0405	O	3968.47	08/11/2004	17:52	15.09	3953.38	
0406	O	3969.91	08/11/2004	08:49	16.23	3953.68	
0408	O	3969.17	08/11/2004	10:58	16.17	3953.00	
0437	O	4048.25	08/10/2004	15:19	90.09	3958.16	
0439	O	4055.27	08/10/2004	14:16	98.95	3956.32	
0492		-	08/11/2004	16:15	16.58	-16.58	
ATP-2-D	O	3967.05	08/10/2004	11:14	15.40	3951.65	
ATP-2-S	O	3967.04	08/10/2004	09:39	12.87	3954.17	
TP-02	O	3975.55	08/10/2004	15:51	21.85	3953.70	
TP-17	D	3963.69	08/12/2004	10:26	12.77	3950.92	
TP-18	D	3963.63	08/12/2004	13:54	13.05	3950.58	
TP-19	D	3962.17	08/12/2004	15:16	12.39	3949.78	

RECORDS: SELECTED FROM USEE700 WHERE site_code='MOA01' AND location_code in('0401','0402','0404','0405','0406','0408','0437','0439','0492','ATP-2-D','ATP-2-S','TP-02','TP-17','TP-18','TP-19') AND LOG_DATE between #8/10/2004# and #8/12/2004#

FLOW CODES: D DOWN GRADIENT O ON-SITE

WATER LEVEL FLAGS:

TRIP REPORT

Stoller

established 1959

Grand Junction Office

Memorandum

DATE: August 31, 2004

TO: Ken Karp

FROM: Ken Pill

SUBJECT: Trip Report – Ground Water and Surface Water Sampling Event

Site: Moab

Date of Sampling Event: August 9 through 13, 2004

Team Members: Ken Pill and Tony Franzone

Number of Locations Sampled: 15 monitor wells, 19 surface water locations, 2 duplicates, and 2 equipment blanks, for a total of 38 samples.

Locations Not Sampled/Reason: Wells 0403 and 0407 were not sampled because these wells were sampled the week before as part of the August 2004 interim action Configuration 1 monthly sampling event.

Field Variance: Only a 125 ml sample was collected for uranium analysis as opposed to the standard 500 ml sample volume. During the sampling effort, a 500 ml sample was collected from one location (surface water location CR5 / ticket NDX 361) for laboratory quality control purposes.

Quality Control Sample Cross Reference: The following are the false identifications assigned to the quality control samples.

FALSE ID	TRUE ID	SAMPLE TYPE	ASSOCIATED MATRIX	TICKET NUMBER
2363	CR1	Duplicate	Surface water	NDX-359
2364	TP18	Duplicate	Ground water	NDX-390
2365	NA	Equipment Blank – SW Equip	De-ionized water	NDX-394
2366	NA	Equipment Blank – GW Equip	De-ionized water	NDX-395

Kenneth Karp
August 31, 2004

RIN Number Assigned: All samples were assigned to RIN 04070090.

Sample Shipment: Samples with ticket numbers NDX 358 through NDX 375 were shipped overnight FedEx to Paragon Analytics, Inc. from Moab, Utah, on August 12, 2004, (Air bill No. 801914298471). Samples with ticket numbers NDX 376 through NDX 395 were shipped overnight FedEx (for Saturday delivery) to Paragon Analytics, Inc. from Moab, Utah, on August 13, 2004 (Air bill No. 801914298460).

Water Level Measurements: Water level data are provided in the table below. These data represent depth to water (ft btoc) measurements.

Well No.	Date	Depth to Water (ft btoc)
ATP2S	8/10/04	12.87
ATP2D	8/10/04	15.40
0439	8/10/04	98.95
0437	8/10/04	90.09
TP02	8/10/04	21.85
0406	8/11/04	16.23
0404	8/11/04	14.83
0408	8/11/04	16.17
0401	8/11/04	16.52
0492	8/11/04	16.58
0405	8/11/04	15.09
0402	8/12/04	15.53
TP17	8/12/04	12.77
TP18	8/12/04	13.05
TP19	8/12/04	12.39

Well Inspection Summary: Well inspections were conducted at all sampled wells; all wells were in good condition.

Equipment: Wells 0437 and 0439 were sampled using dedicated bladder pumps. All other remaining monitor wells were sampled using a peristaltic pump and dedicated tubing. Each surface water sample was collected using a peristaltic pump and hose reel.

Regulatory: None.

Site Issues: Data from the U.S. Geological Society Cisco Gauging Station (Station No. 09180500) indicate the mean daily Colorado River flows during the sampling event were as follows:

Colorado River Flows

Date	Flow (cfs)
08/08/2004	2,670
08/09/2004	2,580
08/10/2004	2,430
08/11/2004	2,270
08/12/2004	2,110
08/13/2004	2,060
08/14/2004	2,050

Location Specific Information:

Sample ID	Date	Location	Description
NDX 358	8/9/04	SW CR1	Sample collected ~5' off boat ramp, depth 4" to 8", low visibility, low flow.
NDX 360	8/9/04	SW 0201	Sample collected ~10' off shore, depth ~6", low visibility, low flow.
NDX 361	8/9/04	SW CR5	Sample collected ~5' off shore, depth 6" to 12", low visibility, low flow.
NDX 362	8/10/04	ATP-2-S	Dedicated tubing intake pulled 2.0' from bottom of well.
NDX 363	8/10/04	ATP-2-D	Dedicated tubing intake pulled 2.0' from bottom of well, off-gassing noted during purge.
NDX 364	8/10/04	0439	Sampled using dedicated bladder pump.
NDX 365	8/10/04	0437	Sampled using dedicated bladder pump, location within spray evaporation area.
NDX 366	8/10/04	TP02	Dedicated tubing intake pulled 1.0' from bottom of well.
NDX 367	8/10/04	SW 0218	Collocated with well TP02. Sample collected ~25' east of base of bank, in main channel, 12' to 15' from shore, depth 6" to 12", med flow.
NDX 368	8/11/04	0406	Tubing intake pulled 1.0' from bottom of well.
NDX 369		SW 0219	Collocated with well 406. Sample from main channel, ~5' off shoreline, ~1' depth, low flow, low visibility, photo DCP_1530.
NDX 370	8/11/04	0404	Dedicated tubing intake pulled 1.0' from bottom of well.
NDX 371	8/11/04	SW 0221	Collocated with well 404. Sample location ~100' southeast from base of bank, sample collected in main channel ~7' off shoreline, depth 6" to 10", med flow, low visibility, photo DCP_1531.
NDX 372	8/11/04	0408	Dedicated tubing intake pulled 1.0' from bottom of well.
NDX 373	8/11/04	0401	Dedicated tubing intake pulled 1.0' from bottom of well.
NDX 374	8/11/04	SW 0222	Collocated with wells 401 and 408. Sample location ~140' east from base of bank, sample collected in main channel ~10' off shoreline, depth 6" to 12", low flow, low visibility, photo DCP_1532.

Sample ID	Date	Location	Description
NDX 375	8/11/04	SW 0224	Location off well 403, which was sampled previous week. Sample location ~300' east from base of bank, sample collected in main channel near top of backwater area, ~12' to 15' off shoreline, depth ~12", low flow, low visibility, photo DCP_1533.
NDX 376	8/11/04	SW 0235	Location off well 407, which was sampled previous week. Sample location ~120' east from base of bank, sample collected in backwater area that is open to main channel downstream and cut off from main channel upstream, ~5' off shoreline, depth ~12", low flow, low visibility, abundant minnows observed, photo DCP_1534.
NDX 377	8/11/04	SW 0225	Location off well 407. Sample location ~225' east from base of bank, sample collected in main channel ~20' off shoreline, depth ~6", low flow, low visibility, minnows observed in shallows, photo DCP_1545.
NDX 378	8/11/04	0492	Dedicated tubing intake pulled 1.0' from bottom of well.
NDX 379	8/11/04	CR3	Collocated with well 492. Sample location off base of bank, sample collected in main channel ~1' off shoreline, depth 6", med flow, low visibility, photo DCP_1546.
NDX 380	8/11/04	SW 0233	Collocated with well 492, same location as CR3. Sample location off base of bank, sample collected in large side channel ~10' off shoreline, depth 6" to 18", med flow, low visibility, photo DCP_1546.
NDX 381	8/11/04	0405	Dedicated tubing intake pulled 1.0' from bottom of well.
NDX 382	8/11/04	SW 0220	Collocated with well 405. Sample location off base of bank, sample collected in main channel ~5 to 10' off shoreline, depth 6" to 12", med flow, low visibility, photo DCP_1544.
NDX 383	8/12/04	0402	Dedicated tubing intake pulled 1.0' from bottom of well, roots down inside well.
NDX 384	8/12/04	SW 0234	Collocated with well 402. Sample location ~300' east from base of bank, sample collected in main channel ~20 off shoreline, down stream of location closed off to flow, depth 6" to 12", low flow, low visibility, minnows and frogs observed, photo DCP_1536.
NDX 385	8/12/04	TP17	Dedicated tubing intake pulled 1.0' from bottom of well.
NDX 386	8/12/04	SW 0226	Collocated with well TP17. Sample location off base of bank, sample collected in large side channel ~5' to 10' off shoreline, very muddy bottom, depth 8" to 12", low flow, low visibility, photos DCP_1537 (looking upstream) and 1538 (looking downstream).
NDX 387	8/12/04	TP18	Dedicated tubing intake pulled 1.0' from bottom of well.

Sample ID	Date	Location	Description
NDX 388	8/12/04	SW 0227	Collocated with well TP18. Sample location off base of bank, sample collected in main channel ~5' off shoreline, rocky bottom, depth unknown, low flow (in small eddy), low visibility, photo DCP_1539.
NDX 389	8/12/04	SW 0232	Collocated with well TP18, in same location as SW 227. Sample location off base of bank, sample collected in main channel ~15' to 20' off shoreline, rocky bottom, depth unknown, med flow, low visibility, observed abundant floating debris, photo DCP_1539.
NDX 391	8/12/04	TP19	Dedicated tubing intake pulled 1.0' from bottom of well, strong sulfur odor
NDX 392	8/12/04	SW 0228	Collocated with well TP18. Sample location off base of bank, sample collected in main channel ~7' off shoreline, muddy bottom, depth unknown, med flow, low visibility, photo DCP_1540.
NDX 393	8/12/04	SW 0217	Sample location opposite side of river from site (off wetlands area), sample collected off gravel bar, ~6' off shoreline, depth ~1.5' to 2', med flow, low visibility, photos DCP_1541 (looking upstream), 1542 (looking downstream), and 1543 (looking north).

Locations that varied significantly from previous sampling round locations (due to changing river stage) were surveyed with a GPS unit. These surface water sampling locations include 0219, 0220, 0221, 0222, 0234, 0224, 0225, and CR3/0233. Location 0235 was not sampled previous to this sampling event, and also was surveyed. Figure 1 shows these locations.

Corrective Action Required/Taken: Prior to sampling surface location 0218 (collocated with TP02, located on the millsite), samplers need to check with T. Guthrie concerning river access from the site.

(KGP/lcg)

cc: J. D. Berwick, DOE-EM (e)
D. R. Metzler, DOE-EM
C. I. Bahrke, Stoller (e)
K. E. Miller, Stoller
L. M. Wright, Stoller (e)
Working File: MOA

F:\Home\L40048\My Documents\UGW\Moab\0408moasampling.trp.doc